

NEW SPECIES OF *SEYMERIA* (SCROPHULARIACEAE) FROM MEXICO

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ABSTRACT

Three new species of *Seymeria* are described from México: *S. cunalana* B.L. Turner (from northwestern Jalisco); *S. gypsophila* B.L. Turner (from southern Nuevo León and closely adjacent Tamaulipas); and *S. pailana* B.L. Turner (from Sierra de la Paila, southern Coahuila). In addition, new records and observations for *S. defleza*, *S. falcata*, *S. integrifolia*, *S. pennellii*, and *S. tamaulipana* are provided, along with a newly written key for the fifteen species currently recognized in México.

KEY WORDS: Scrophulariaceae, *Seymeria*, México

Turner (1982) provided a revisionary study of the Mexican species of *Seymeria* in which fifteen species were recognized, twelve of these largely confined to México. Routine attempts to identify miscellaneous Mexican collections assembled since that study have prompted the present contribution in which three new species are described, bringing to eighteen species the number recognized in the genus, fifteen of these mostly Mexican.

The following key will distinguish among the fifteen Mexican species. Elsewhere (Turner 1982) I have provided distributional maps for previously described Mexican taxa, and these need not be reproduced here, although a few new collections have extended the range of this or that taxon, and where significant these are commented upon below.

KEY TO MEXICAN SPECIES

1. Perennials with ligneous or woody, often branched, root systems.(2)
1. Annuals with simple (rarely branched) tap roots.(8)
 2. Corollas completely glabrous on their external surfaces.(3)

2. Corollas to some extent pubescent on their external surfaces. . . (7)
3. Leaves pinnatisect to bipinnatisect with filiform segments; Pacific coast slopes of Durango and Sinaloa. *S. pennellii*
3. Leaves not as described in the above; Central Plateau and northeastern Gulf Slopes of Sierra Madre Oriental. (4)
4. Leaves, or ultimate divisions of leaves, linear; stems stiffly erect, glutinous; mostly gypseous soils. *S. gypsophila*
4. Leaves or their ultimate divisions not linear, or if simple and linear then the stems mostly arched or trailing, not glutinous; calcareous soils. (5)
5. Calyx densely glandular-pubescent throughout; mountains about Monterrey, México. *S. aefleza*
5. Calyx eglandular, hispidulous to glabrescent. (6)
6. Leaves mostly linear-lanceolate, entire to 2-3 lobed; capsules ovoid, mostly ca. 6 mm long; Nuevo León and Tamaulipas. *S. tamaulipana*
6. Leaves ovate to obovate (in outline), markedly lobed throughout; Sierra Paila, Coahuila. *S. pailana*
7. Corollas 6-9 mm long; flowering pedicels mostly 5-12 mm long. *S. virgata*
7. Corollas 10-20 mm long; flowering pedicels mostly 10-20 mm long.
 *S. decurva*
8. Capsules glabrous. (9)
8. Capsules pubescent or atomiferous-glandular. (11)
9. Calyx lobes pinnatisect; Mpios. de Talpa and de la Huerta, Jalisco.
 *S. cualana*
9. Calyx lobes linear to oblanceolate. (10)
10. Calyx tubes 1.0-1.5 mm long; corollas 6-7(-8) mm long; capsules mostly symmetric. *S. integrifolia*
10. Calyx tubes 1.5-3.0 mm long; corollas 7-9 mm long; capsules mostly asymmetric (semifalcate). *S. falcata*
11. Capsule with sessile capitate glands (appearing glandular-atomiferous); foliage deeply bipinnatisect, glabrous or nearly so. *S. laciniata*

11. Capsule variously pubescent; if glandular-pubescent, the glands stalked; foliage various, but rarely both bipinnatisect and glabrous. (12)
12. Corolla glabrous on the external surfaces. (13)
12. Corolla with at least a few hairs or glandular-trichomes on the external surfaces. (16)
13. Leaves not pinnatisect, variously irregularly serrate or lobed, the lobes 2-5 mm broad. *S. defleza*
13. Leaves deeply pinnatisect, the lobes linear, mostly 1 mm or less broad. (14)
14. Calyx, pedicels and foliage hispidulous to nearly glabrescent, devoid of glandular hairs; southern Durango and closely adjacent Jalisco. *S. pennellii*
14. Calyx, pedicels and foliage to some considerable extent glandular-pubescent; northcentral and northeastern México. (15)
15. Calyx, pedicels and (usually) foliage beset with short, stipitate-glandular trichomes only; leaves mostly pinnatisect. *S. scabra*
15. Calyx, pedicels and foliage beset with multiseptate, glandular-trichomes, these usually interspersed with non-glandular hairs; leaves mostly pinnatisect. *S. coahuilana*
16. Corollas 6-7(-8) mm long, very sparsely pubescent, the lobes narrow, twice as long as wide; capsules mostly 7-8 mm long. *S. sinaloana*
16. Corollas (7-)8-12 mm long, prominently pubescent (rarely not), the lobes broad, scarcely as long as broad; capsules mostly 8-12 mm long. *S. bipinnatisecta*

SEYMERIA COAHUILANA (Pennell) Standley

This is a problematic species, as already noted (Turner 1982). One additional collection has come to light (Coahuila: Mpio. Castañas, Puerto de San Lazaro, Sierra de San Laz, 30 Aug 1939, *Muller 3059* [MICH]). Since roots are unknown for the taxon, I am not certain if it is an annual or perennial. I have assumed it to be an annual because of its overall resemblance to *Seymeria bipinnatisecta*.

SEYMERIA CUALANA B.L. Turner, *sp. nov.* TYPE: MEXICO. Jalisco: Mpio. de la Huerta, 5 km al E de la Mina, Sierra "El Cuale," pine-oak woodlands, 8 Nov 1978, *J.A.S. Magallanes 1236* (HOLOTYPE: UCR!).

Seymeria integrifoliae Greenm. similis sed differt foliis 1-2-pinnatim dissectis divisionibus linearibus (vs. lacerate lobatis vel 1-pinnatim dissectis), lobis calycum pinnatim dissectis foliis similibus (vs. lobis tantum lineari-lanceolatis integrisque), et pedicellis pubescentibus trichomatibus erectis glandulosi-capitatis (vs. trichomatibus recurvatis eglandulosis).

Annual (?) herbs to 30 cm high (according to label data). Stems slender, minutely pubescent with both glandular-capitate and eglandular hairs. Leaves deeply once- or twice-dissected, 10-18 mm long, 6-8 mm across, the ultimate divisions linear, mostly 0.5 mm wide or less. Flowers arranged in leafy terminal racemes, the peduncles mostly 5-10 mm long, sparsely glandular-capitate. Calyces ca. 6 mm long; tubes 1.5-2.0 mm long; lobes pinnately divided like the leaves, 2-4 times as long as the tube, moderately capitate-glandular. Corollas glabrous externally, yellow, ca. 9 mm long, 8 mm wide (pressed); tube ca. 2 mm long; throat campanulate, ca. 3 mm long; lobes ca. 4 mm long, 3.5 mm wide, the margins ciliate. Anthers dehiscent for ca. 3/4 their length; filaments pilose for ca. 2/3 their length. Capsule broadly ovoid, glabrous, apically dehiscent, ca. 7 mm long, 5 mm wide (pressed), the fruiting styles 7-9 mm long; seeds immature.

ADDITIONAL SPECIMEN EXAMINED: MEXICO. Jalisco. Mpio. de Talpa, Cerros de Las Minas de Oro, "bosque de encino y pino en ladera", 2000 m, 30 Oct 1971, *R. González T. 566* (MICH).

If annual, which I suspect it is, this taxon will key in my treatment (Turner 1982) to *Seymeria integrifolia*, a species of Durango, Nayarit, and northcentral Jalisco, and certainly its closest relative. *Seymeria cualana* is readily separated by its markedly dissected leaves with filiform divisions and pinnately dissected calyx lobes. The latter character is not known elsewhere in the genus, although occasional specimens of yet other species may show the lobes to be toothed. In addition, the upper pedicels of *S. cualana* are pubescent with capitate-glandular hairs only, *S. integrifolia* possessing broad-based recurved eglandular hairs.

SEYMERIA DEFLEXA (Eastwood) Pennell

Since my earlier account of this species, the following collections have been examined: Nuevo León: Chipinque Mesa, 22 Dec 1987, *Brown 11908* (TEX); Mpio. Morelos, Sierra de la Cebolla, 20 Aug 1939, *Mueller 2870* (MICH); Cerro de la Silla, near Monterrey, 2 Sep 1937, *White 142* (MICH).

In habit and leaf shape, this species is superficially similar to *Seymeria tamaulipana* but is readily distinguished from the latter by its densely glandular-pubescent calyces.

SEYMERIA FALCATA B.L. Turner

Since my earlier account of this species, the following significant collection has come to the fore: MEXICO. Chihuahua: Mpio. Ocampo, area of Cascada de Basaseachic, 2000-2100 m, 17-20 Oct 1986, *Nesom 5675* (TEX).

This collection belongs to, or is closely related to, the var. *falcata*. It differs from typical elements of the latter in having somewhat larger flowers on much longer arcuate pedicels (10-15 mm long vs. 6-10 mm long). Study of additional collections from the area in which this collection occurs might show that it belongs to an undescribed taxon. Most other collections of the taxon have been from southeasternmost Chihuahua and adjacent Coahuila.

SEYMERIA GYPSOPHILA B.L. Turner, *sp. nov.* TYPE: MEXICO.

Tamaulipas: ca. 52 air km WNW of Jaumave, ca. 10 km NW of Miquihuana, 10 km N of La Perdida on top of ridge along high road to Marcela (ca. 23° 38' N, 99° 52' W), ca. 2000 m, 9 Oct 1982, *James Henrickson 19188* (HOLOTYPE: TEX).

Seymeriae tamaulipanae B.L. Turner similis sed differt plantis stricte erectis (vs. recumbentibus) et foliis glutinosis divisionibus lineari-lanceolatis plerumque multo longioribus quam latioribus (vs. non-glutinosis foliis plerumque simplicibus tantum lobatis vel divisionibus brevibus oblanceolatis).

Stiffly erect glutinous perennial herbs 30-50 cm high. Stems minutely hispidulous to glabrous. Midstem leaves mostly 2-4 cm long, 1-2 cm wide, merely lobed, or once- to twice-pinnately dissected, glutinous, the ultimate divisions mostly linear to linear-lanceolate. Flowers arranged in terminal leafy or bracteate racemes, the pedicels usually arcuate or sigmoid, mostly 5-20 mm long, Calyces 2.5-7.0 mm long, glabrous; cup 2-3 mm long; lobes linear-lanceolate, 1-4 mm long. Corollas yellow, 6-10 mm long, 4-6 mm wide, glabrous externally; tubes 1-2 mm long; throats 3-5 mm long, lobes 2-3 mm long, glabrous externally except for the ciliate margins. Anthers dehiscent throughout, the filaments densely pilose throughout. Capsules ovoid, glabrous, symmetrical, mostly 6-8 mm long, 3-4 mm wide (pressed), the fruiting styles 3-6 mm long; seeds not observed.

ADDITIONAL SPECIMENS EXAMINED: MEXICO: Nuevo León: along road from Aramberra to El Salitre, gypsum hillside, 1325 m, 26 Oct 1993, *Hinton et al. 29753* (TEX); ca. 30 km ENE of Dr. Arroyo, 2.5 km ENE of San Antonio de Peña Nevada, W base of Mt., large area of gypsum outcrops, "only on gyp", 6600 ft, 3-5 Aug 1981, *Nesom 4259* (TEX); Cerro Peña Nevada, ca. 12 km NE of San Antonio de Peña Nevada, W and NW slopes of Mt. locally known as Pacacho Onofre, ca. 5 km NW of the latter peak, Jul 1977,

Wells & Nesom 312 (TEX). Tamaulipas: Mpio. Miquihuana, El Cargadero, 15 km NW of Estanque de los Walle, (ca. 23°60' N, 99°55' W), 2000 m, 25 Oct 1939, *Hernández S. 2059* (TEX); Sierra de San Carlos, Pico del Diablo, ca. Marmolejo, 12 Aug 1930, *Bartlett 10920* (MICH).

It is not certain that *Seymeria gypsophila* is confined to gypsum outcrops over the region of its distribution but, as noted by label data on *Nesom 4259* who first collected the species, in that area it was found "only on gyp", this fact underlined by the collector. Nevertheless, the type itself does not bear data as to substratum, but gypsum outcrops are known to occur in the region concerned. Also, gyp is not known to occur in the Sierra de San Carlos (*Bartlett 10920*), the mountains mostly composed of granitic outcrops (pers. obs.).

Seymeria gypsophila is unquestionably close to *S. tamaulipana*, the latter occurring on mostly calcareous or igneous soils, to judge from label data from ten different collections on file at LL, TEX. Numerous edaphic endemics are known from southern Nuevo León and Tamaulipas, and the present novelty merely extends the list.

SEYMERIA INTEGRIFOLIA Greenm.

Since my earlier account of this species (Turner 1982), the following collections have been examined: MEXICO. Durango: steep slopes at base of Espinoso del Diablo, road between Mazatlán and Durango, 2500 m, 28 Oct 1973, *Breedlove 35734* (TEX). Jalisco: Mpio. Ayutla, 20 road-miles SW of Ayutla, 1950 m, 5 Nov 1962, *McVaugh 22080* (MICH); Mpio. Zapopan, Cerro del Colli, orilla W de Guadalajara, 1760 m, 30 Oct 1991, *Chazaro B. 6768* (MICH); 7-8 mi NW of Los Volcanes, 1900-2000 m, 23-25 Oct 1952, *McVaugh 13690* (MICH).

The Durango collection differs in having somewhat larger fruits than the collections from Jalisco and Nayarit, otherwise it appears fairly typical. Nayarit: 22.7 km SW of Jesús María, 5 Nov 1988, *Tellez V. 11402* (MICH).

SEYMERIA PAILANA B.L. Turner, *sp. nov.* TYPE: MEXICO. Coahuila: Sierra de la Paila, Ejido El Cedral camino hacia el valle de parreños (25°57' y 101°33')ⁿ, 1800-1900 m, 4 Oct 1989, *J.A. Villarreal 5301* (HOLOTYPE: TEX).

Seymeriae tamaulipanae B.L. Turner similis sed foliis plerumque lineari-lanceolatis integrisque (vs. profunde lobatis vel bipinnatisectis), calycibus minoribus (3-5 mm longis vs. 5-6 mm), et corollis minoribus (5-6 mm longis vs. 8-10 mm) differt.

Perennial (?) suffruticose herbs to 50 cm high. Stems semierect or trailing, moderately pubescent with strigose or down-turned hairs, the vestiture ca. 0.1-0.3 mm high. Midstem leaves opposite, linear-lanceolate, sessile or nearly so, 1.5-3.5 cm long, 0.2-0.8 cm wide, gradually reduced upwards, 1-nervate, pubescent like the stems, mostly entire but some of the larger leaves with 1-2 lobes to a side, Flowers 3-20, arranged in terminal bracteate racemes, peduncles arcuate, mostly 10-15 mm long, pubescent like the stems. Calyces 3-5 mm long, hispidulous with down-curved hairs; cups 1.5-2.5 mm long; lobes linear, 1.5-3.0 mm long. Corollas yellow, 5-7 mm long, glabrous externally on the faces, the tubes 3-4 mm long. Anthers dehiscent for ca. 3/4 their length; filaments pilose for ca. 2/3 their length. Capsule ovoid, glabrous, apically dehiscent, mostly 8-10 mm long, ca. 5 mm wide (pressed), the fruiting styles 4-5 mm long; seeds immature.

ADDITIONAL SPECIMENS EXAMINED: MEXICO. Coahuila: Mina El Aguirreño, north side of Sierra de la Paila, steep calcareous slopes, 1700-2000 m, 5 Jul 1973, *Johnston 11681B* (TEX); El Cedral, Sierra de la Paila, 1300-1600 m, 20 Aug 1987, *Villarreal 13965* (TEX).

This taxon is closely related to *Seymeria gypsophila* and *S. tamaulipana* but is distinguished from both by having linear-lanceolate, mostly entire leaves, smaller flowers, and larger capsules. So far as known the species is confined to the Sierra de la Paila in southern Coahuila, where it reportedly grows among pines and oak (*Villarreal 3965, 5901*) or within "chaparral" vegetation dominated by *Yucca*, *Agave*, *Dasyllirion*, and *Quercus* (*Johnston 11681B*).

SEYMERIA PENNELLII B.L. Turner

MEXICO. Durango: Mpio. El Mezquital, 2750 m, 1 Nov 1982, *González & Rzedowski 2346* (TEX); ca. 75 km S of Cd. Durango along the highway to La Flor, 8000-9000 ft, 18 Aug 1982, *Worthington 8846* (TEX). Jalisco: Mpio. Bolaños, ca. 30 km W of Bolaños, 2610 m, 19 Oct 1983, *Lott 2066* (LL).

When originally described, this taxon was thought to be perennial, and its fruit was unknown. New collections have come to light (cited above), including an isotype (MICH), that clearly show the taxon to be a taprooted annual; additionally, it clearly has glandular capsules, which readily distinguishes it from the superficially similar *Seymeria integrifolia*. In my protologue of *S. pennellii*, however, I did point out its possible relationship to the annual *S. laciniata*, which indeed it resembles, except that the foliage is markedly pubescent (vs. glabrous or nearly so) and the capsules have stipitate glands (vs. sessile).

SEYMERIA TAMAULIPANA B.L. Turner

In my original description of this species I cited four collections in addition to type material. One of the former, *Wells & Nesom 312* (LL), belongs to *Seymeria gypsophila*, described in the present paper.

ACKNOWLEDGMENTS

I am grateful to Guy Nesom for the Latin diagnoses, and to him and Ted Delevoryas for reviewing the paper. Special thanks are extended to MICH for the loan of their Mexican collections (totaling 69 sheets).

REFERENCE

- Turner, B.L. 1982. Revisional treatment of the Mexican species of *Seymeria* (Scrophulariaceae). *Phytologia* 51:403-422.